AGENCY FOR INTERNATIONAL DEVELOPMENT
PPC/CDIE/DI REPORT PROCESSING FORM

78990

ENTER INFORMATION ONLY IF NOT INCLUDED ON COVER OR TITLE PAGE OF DOCUMENT

1. Project/Subproject Number: 9365948

2. Contract/Grant Number: DPE-5948-C-00-5044-00

3. Publication Date: June 1989

4. Document Title/Translated Title:

ASSESSMENT OF VECTOR CONTROL PROJECT
DOMINICAN REPUBLIC (517-0235)

5. Author(s)

1. Moser, Patricia
2. Arata, Andrew A.
3.

6. Contributing Organization(s)

Vector Biology and Control Project
Medical Service Corporation International

7. Pagination: 33 p.

8. Report Number: AR-122-4

9. Sponsoring A.I.D. Office: S&T/H

10. Abstract (optional - 250 word limit)

11. Subject Keywords (optional)

1.
2.
3.
4.
5.
6.

12. Supplementary Notes

13. Submitting Official: Robert W. Lennox, Sc.D.

14. Telephone Number: 703-527-6500,

15. Today's Date: July 2, 1992

DO NOT write below this line

16. DOCID

17. Document Disposition: DOCRD [] INV [] DUPLICATE []

AID 590-7 (10/88)

VECTOR BIOLOGY & CONTROL

Vector Biology & Control Project
1611 North Kent Street, Suite 503
Arlington, Virginia 22209
(703) 527-6500

Telex: 248812 (MSCI UR)
Cable: MSCI Washington, D.C.

ASSESSMENT OF VECTOR CONTROL PROJECT DOMINICAN REPUBLIC (517-0235)

Patricia Moser, LAC/W
Andrew A. Arata, VBC Project (S&T/H)

May 15-24, 1989

Managed by Medical Service Consultants, Inc.
under contract to U.S. Agency for International Development

Acknowledgement

Part of this assessment was sponsored as field activity AR-122-4 by the Vector Biology & Control Project under Contract No. DPE-5948-C-00-5044-00 to Medical Service Corporation International, Arlington, Virginia, U.S.A., for the Agency for International Development, Office of Health, Bureau of Science and Technology.

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

F. Annexes

A. INTRODUCTION

The Vector Control Project (517-0235) is scheduled to terminate on September 11, 1989. The mission has received a request from the Project's grantee, the University of South Carolina, to approve a no-cost, one year Project Assistance Completion Date (PACD) extension. The Mission requested the authors to conduct an assessment of the Project and advise regarding whether it should be extended, if so, for how long, and if not, how efforts should be focused to obtain maximum outputs before the PACD. Details of the Scope of Work (SOW) presented to the evaluation team are found in Annexes I and II.

The team held extensive meetings with the mission and representatives of the University of South Carolina (USC), the Universidad Catolica Madre y Maestra (UCMM) and the Servicio Nacional de la Erradicacion de Malaria (SNEM) of the MOH/GODR. Other organizations associated with vector-borne diseases (i.e., PAHO and the National Laboratories) were also visited. The detailed agenda of the evaluation period is seen in Annex IV.

This report consists of two main evaluation sections (Administrative Issues and Technical Issues), and a Summary and Recommendation Section. In the final section, the team has assessed those outputs that can be achieved by the current PACD and what outputs could be completed if an extension were granted, subject to continued performance of the USC, UCMM and SNEM in the areas recommended.

This project was designed to develop an operational research capability in the area of vector control at two participating institutions (UCMM and SNEM) in the Dominican Republic and to conduct operational research on effective and low-cost means of vector control. As it is very difficult to evaluate how "good" the results of research are, the evaluation team concentrated on how efficiently the Project had conducted its research and training activities and how closely it had approached the goal of developing a research capability in the Dominican Republic.

B. ADMINISTRATIVE ISSUES

1. Training

Almost all short-term in-country and U.S. training targets will have been met or exceeded by PACD except in the one area of data collection and management, for which no training has been provided. Training has not been as broad as planned, but has been more intensive in certain areas. On-the-job training has played a greater role in meeting project objectives than provided for in the Project Paper (P.P.).

SNEM has provided training without assistance from the Project in two areas originally proposed under the Project: training of physicians in dengue and malariology, and training of persons in tourism and agriculture in vector control.

Problems encountered in completing both formal and on-the-job training as proposed included difficulties in assuring SNEM participation in courses and project activities, low skill levels among SNEM employees and frequent changes in SNEM personnel due to low salaries. Members of SNEM staff were not formally assigned to work with the USC project director until December 1987, fifteen months after the Project began. At that time, ten persons were assigned. Personnel changes have altered the composition of that contingent and only six SNEM staff members remain with the Project.

Lack of broader participation in training has hampered efforts to institutionalize project progress in both SNEM and UCMM. However, UCMN and SNEM's joint preparation of a manual for training personnel in the safe use of spray technologies, which is nearing completion, will broaden the training benefits of the Project. The manual is being developed using lectures and materials in the subject area provided under the VC Project. Also to its advantage, the Project has managed to train several senior-level persons, including the current SNEM director, which will help broaden support for the operations research capabilities being developed.

Long-term training will be 50 percent completed at PACD (1-1/2 persons trained). Delays in this activity were caused by the second candidate's need for additional training in English and the difficulty of identifying a candidate from SNEM during the early part of the Project. Training of the SNEM candidate (expected completion May 1990) is a critical element in continued project success after the PACD. Funds remaining in the DA budget training line item are adequate for completion of long-term training for the second participant. Additional funds will be required for training of the SNEM candidate.

2. Technical Assistance

Long-term technical assistance (TA) has been provided since the beginning of the second quarter of the Project. The long-term (LT) consultant has been engaged in appropriate training and technology transfer activities, but the lack of a direct SNEM counterpart until December 1987 delayed achievement of Project activities. The LT Advisor has reported on activities in the Project quarterly reports.

Eighty-six percent of Project short-term technical assistance has been provided to date. Technical assistance has covered entomological surveys, control interventions and health education. Technical assistance has not been provided as planned in data management and epidemiology.

Short-term assistance needs were identified in collaboration with host country institutions. Scopes of work and standardized trip reports are filed at the grantee's offices at the University of South Carolina. Consultants' reports have been made available only to the particular institution collaborating with the consultant. Broader distribution to PAHO, project collaborating institutions and USAID has not been made. However, project quarterly and annual progress reports, which provide a summary of technical assistance provided during the reporting period, have been widely distributed within the relevant community in the Dominican Republic.

Funding is available under the TA line item of the DA budget to continue the services of the long-term advisor for an additional year from the current PACD and to provide the remaining 63 person days of short-term TA as budgeted for the Project. Savings have been realized in this line item because many of the experts have been provided at little or no cost to the Project. A list of short-term TA provided as of May, 1989 is provided in Table 1.

3. Infrastructure Development

SNEM has provided laboratory and insectary space at SNEM headquarters and, as required, at Barahona. Construction of a lab with PL480 local currency has been completed at UCMM. Delays in lab completion were a result of the slow release of local currency funds. No further construction or space renovation is required. All project budgeted local currency funds for these activities have been expended or committed.

Table 1. Short-Term Technical Assistance
Person Days

Consultants Listed by Project	No. of Days	Amount
Dr. Andrew Gordon	40	5,040
Dr. Richard Darsie	5	No fee
Dana Focks	5	No fee
Dr. Donald Roberts	10	1,900.00
Dr. Richard Wirtz	3	No fee
Yilma Mekuria	154	5,000.00
Dr. Ray Parsons	5	950.00
Daniel Haile	5	No fee
Jose Moquillaza	10	1,500.00
Dan Boyd	9	1,485.00
Fernando Agudelo	4	660.00
Total Days Budgeted for Project -	445	
Total TA Days Reported Used -	382	
Remaining Consultant Days -	63	

4. Commodities

All major commodities, including transport, pesticide application, data management and laboratory equipment have been acquired and are in use. Appropriate spare parts have been acquired and training in operation, use, and maintenance for spray and laboratory equipment has been provided. No further major commodity procurement is envisioned, nor are funds available under this DA budget line item. The only shortcoming in the provision of commodities identified by this evaluation team was the failure to provide a computer (as well as training) for data management to SNEM.

5. Financial Resources

Project DA resources have been managed by the University of South Carolina. At current activity levels, as provided in Table 2, it is projected that two-thirds of the DA resources will have been expended by PACD.

Table 2. USAID Vector Control Project - 517-0235
DA Funds
April 1, 1989 - September 11, 1989

	Budget	Expenditure to date	Projected Expenditures 4/1/89-9/11/89	Balance	% Exp
Technical Assistance	$ 631,000	$296,013	$ 55,000	$279,897	56%
Training	93,000	61,397	11,000	20,603	70%
Commodities	270,000	250,916	7,000	12,084	96%
Support/ Cont.	107,000	44,522	6,500	55,978	48%
Evaluation	50,000	18,000	0.00	32,000	64%
Overhead	349,000	192,000	40,000	116,893	66%
TOTAL	$1,500.000	$862,848	$199,500	$517,855	66%

* Balance - Budgeted Amount Less Expenditures to Date and Projected Expenditures.

Expenditure rates for the PL480 and UCMM local currency budgets are difficult to project due to rapid inflation in the economy as a result of devaluation of the local currency. Seventy-five percent of PL480 local currency has been provided to date. The final amount of RD 146,214 (bringing the total to the budgeted amount of RD 600,000) has been requested. All budgeted PL480 funds will be expended by PACD in paying for completion of the laboratory at UCMM and local project costs.

UCMM has provided to date 55 percent of its budgeted amount to RD 218,400. This is less than projected due to lack of broader participation by UCMM staff in the Project and lack of resources required for laboratory development at SNEM. Any extension of the Project should include use of these funds.

No information was available on the funds budgeted for SNEM contribution. SNEM has provided laboratory space and six to 10 full-time counterparts, and vehicles and equipment made available. Because assignment of staff and resources to the Project lagged by fifteen months, continued provision of SNEM inputs to meet project objectives throughout a proposed extension is assumed.

6. Institutionalization

In order to assure the development impact of this project, the PP calls for the long term institutionalization of the operations research skills utilized in selecting, developing, assessing and implementing cost-effective control measures that appropriately address the disease risks posed by the malaria and dengue situations in the DR. Progress has been made in meeting this objective through (a) the development of a cadre of persons with research skills in both SNEM and UCMM through training, including participation in trials of control methods; (b) the construction of a laboratory; (c) the provision of appropriate commodities; and (d) the provision of short- and long-term technical assistance. Mitigating against timely accomplishment of Project's institutionalization objective are factors, including:

1. the difficult environment imposed by financial and personal constraints within SNEM, which has hindered Project progress and was a causative factor in the lack of development of complementary skills in epidemiology and data management appropriate to operations research;

2. the need to develop a broader base of support for operational research activities in the areas of vector biology and control within the UCMM faculties;

3. the lack of emphasis placed on long-term institutionalization versus conduct of research by project management, including the lack of a programmatic context in the selection of control methods for testing;

4. slow release of Project PL480 counterpart funds required for infrastructure development;

5. delays in accomplishing long-term training of USC and SNEM staff members; and

6. difficulties that are inherent in attempting to implement research projects against very restrictive time frames because of the non-linear quality of research completion.

USC and its local counterparts are in the process of jointly reviewing the progress made in institutionalizing capabilities in each of the participating institutions. Included in this process

will be development of a document that will review progress, make recommendations for sustaining skills and capacities developed and provide a written proposal for future SNEM and UCMM collaboration in this area. This document will be provided to USAID in conjunction with a previous request for extension of the Project.

7. Constraints

A major assumption within the Project Paper has been the ability and willingness of SNEM to meet proposed commitments and to work within a collaborative framework with UCMM and USC. The major deterrent to project progress was the difficult fiscal and personnel environment at SNEM during the early period of the Project.

During the initial 27 months of the Project, SNEM had five different directors. This lack of direction hindered collaboration with the institution. In addition, information provided by PAHO shows that the value of expenditures made for the total SNEM program was less in 1987 than in 1985 and equal to less than one-third of the annual budget levels for 1980-1984. Thus, SNEM has been experiencing an extreme shortage of the fiscal resources required to operate a vector control program.

Assumptions regarding the provision by SNEM of transport and equipment have not been borne out due to the poor state of repair and maintenance of SNEM-owned commodities. SNEM provision of counterpart staff and participation in training also was hindered during the initial 15 months of the Project due to a reported inability of Project staff to develop collaborative working relationships with important members of the SNEM staff, who were unwilling to work toward meeting project objectives. During the period when counterpart personnel were provided full-time, frequent staff turnovers occurred. Long-term sustainability of project objectives is also hindered by the unknown future status of project-trained collaborators due to low salaries, lack of room for advancement and perceptions of poor management. All of these factors deter long-term commitment by junior and mid-level staff.

Most project collaboration issues have been resolved in recent months. The leadership at SNEM and its parent organization, SESPAS, has recently provided strong support for the Project. The Project is currently progressing smoothly in most areas (with the notable exception of computerized data management), although it is behind schedule.

UCMM and USC have enjoyed a much more collaborative relationship from project development to the present. UCMM has provided required project inputs and support. The major problem in regard to meeting project objectives of long-term institutionalization of the research capabilities has been the

inability of the Project and UCMM management to identify UCMM faculty to participate in the Project. Stated reasons for this problems are the small number of faculty in biological sciences and the heavy teaching schedules of all faculty members. Two persons not on UCMM regular staff will have participated in long-term training and project activities at PACD. Only one faculty member has participated full-time in project activities to date.

Another constraint to meeting of project objectives has been the emphasis placed by the USC project management on the results of studies rather than the development of a process and actual use of technologies in control programs. This emphasis has not supported development of local capacities to the greatest extent possible. During this evaluation and a previous evaluation, as reported in the August 1988 Project evaluation, a lack of detailed protocols for the choice, design, evaluation and program use of interventions tested or proposed for testing was observed. Much of the training provided has focused on the skills and persons required to conduct trial interventions and little attention has been placed on development of formal training capacity for continued operations of research activities and applications.

Slow release of PL480 funds also detained project progress as it hindered completion of laboratory construction and funding of transportation and other local costs. The initial three tranches of funds which have been received required three, seven and one and one-half months respectively between USAID-approved request for funds by the counterpart agency (UCMM) and release of funds by the GODR. None of these times is outside the range of time required for release of PL480 funds for other A.I.D. Projects. Review of information provided by USAID provides a range of from one day to 27 months for time between approved request and release of initial project-related PL480 counterpart funds. Of the 31 projects reviewed (those having requested only one tranche of funding to date), 15 required longer than three months for receipt of funds and ten required more than seven months.

Other constraints have included the inability to select and prepare appropriate candidates for long-term training and the difficulty of adhering to strictly enforced time schedules during the research process.

Comparison of the verifiable indicators and assumptions of the Project Logical Framework to the outputs achieved by May 1989 are shown in Table 3.

Table 3: Project Design Summary Logical Framework
(Modified from Project Paper)

Project Title and Number: Vector Control, 517-0235 | Assessment of Progress May 1989 | Life of Project: FY 1987-1989; PACD Date : September 1989; Date Prepared : July 8, 1986.

Narrative Summary	Objectively Verifiable Indicators		Important Assumptions
Program or Sector Goal: This project will contribute to a healthier environment in the DR by improving the nation's ability to control vector-borne diseases. It will also support the nation's efforts to expand tourism (by helping to prevent malaria and dengue outbreaks) and agribusiness (by preventing increases in vector populations in irrigated areas).	**Measure of goal achievement:** - Measurable reduction in incidence of malaria and dengue fever. - Increased case finding and follow up on confirmed cases by SNEM. (Note that both indicators will become valid after end of project.)	not realized --->; lowered priority --->	- Sustained economic growth and GODR financial support to health services and SNEM. - Continued support by PAHO. - Stability in the public sector to allow implementation of project activities.
Project Purpose: Develop and test ecologically sound, low cost and effective interventions in vector control to reduce the incidence of malaria and dengue, and establish institutional capacity for further applied research.	**End of Project Status (EOPS):** - The UCMM medical entomology laboratory will be able to perform basic vector control operations research for malaria and dengue. - UCMM faculty will be able to design, implement, and evaluate the technical, economic, social and financial dimensions of at least three vector control interventions.	2/3 complete yes --> <--; 2/3 complete <-- SNEM problems --->	- USC will be able to introduce vector control technologies th have been applied in other countries. - Staff of UCMM and SNEM will be able to fulfill their commitment for duration of the project.

Narrative Summary	Objectively Verifiable Indicators	Important Assumptions
	EOPS (continued):	
	- UCMM will be able to provide training on vector control problems to personnel in private agriculture and tourism.	<--yes
	- SNEM staff will have the capacity to apply new vector control techniques that were proven successful during field trials.	50%-need additional experience beyond <--- PACD
	- SNEM will be able to conduct and apply operations research protocols.	50% complete <---
	- A permanent national link will exist between UCMM and SNEM for conducting vector control research.	Awaits plan <---
	- Recommendations for a follow-on national program will have been developed, including cost analysis of measures to be taken and identification of all resources necessary for successful sustained control of malaria and dengue vectors.	<-- This is a long-term goal not an indicator

Narrative Summary	Objectively Verifiable Indicators	Important Assumptions
Inputs		
1. SNEM Provide adequate staff and facilities to carry out project activities.	- SNEM and UCMM together will fund $180,000 equiv. in in-kind contributions to the project and $320,000 (equiv. in pesos) will be made available by GODR from PL-480 Title I account.	<--problem due to inflation sharp decrease between '84 & '85 not yet felt- did not grow with inflation a/or salary hikes -->
2. UCMM Provide necessary space, controller of project peso costs, and adequate professional personnel to carry out assigned research tasks.	- Project Budget (US$000)	
3. USC Provide general project coordination, technical assistance, training and procurement services.	see text <---	
4. GODR Provide $320,000 equiv. for peso costs not provided by SNEM and UCMM personnel as in-kind inputs.	<----------less due to exchange rate	
	- TA, training, commodities and other inputs provided as scheduled.	

	AID	GODR,SNEM UCMM
TA	631	-
Training	93	104
Commodities	270	15
Support Costs	30	321
Constr./Land	0	60
Evaluation	50	0
USC Overhead	349	0
Contingencies	77	0
Total	1,500	500

- GODR budget support for SNEM remain at least at 1985-86 levels.
- Requested funds are available.

Narrative Summary	Objectively Verifiable Indicators		Important Assumptions
Outputs:		Problems with SNEM staff in areas of epidemiology & change of director(s)	
1. UCMM will have participated in Operations Research (OR) programs to control malaria and dengue vectors and will be able to apply OR to the control of other diseases.	- An entomological laboratory will be established at UCMM.	<--yes	- USC, UCMM and SNEM working relationships are productive and mutually beneficial during LOP.
	- UCMM faculty and laboratory staff will be trained in OR techniques.	<--yes	- USC, UCMM and SNEM find it mutually beneficial to continue their relationship after LOP.
2. SNEM will have conducted field applications and evaluated alternative interventions to determine if they should be incorporated into national malaria and dengue control programs.	- Three UCMM faculty members will receive training, participate in the design, implementation and evaluation of at least six vector control interventions, and be able to perform OR for other such interventions.	moving toward this --->	
3. A permanent link will have been established between a research-oriented American university, USC, a Dominican research institution, UCMM, and a Dominican vector control institution, SNEM.	- One faculty member trained under the project will direct future activities of the UCMM research center.	To be identified <-- by UCMM	
	- Three senior SNEM staff will be trained in the design, management, data collection and evaluation of field trials in vector control and will train field staff to apply control techniques.	<-- yes	
	- SNEM will be able to adapt OR protocols to operational applications of tested vector control interventions.	need more <-- experience	
	- SNEM will use a microcomputer system for data analysis and will select the best mix of interventions to be used in control programs.	not done <---	

1. Technical Background

a. Malaria: The number of cases of malaria reported in the Dominican Republic since 1980 is as follows:

1980	4,780	1985	816
1981	3,596	1986	1,360
1982	4,654	1987	1,206
1983	3,801	1988	1,000 (approx.)
1984	2,370		

TOTAL: 23,583: (1980-1987) = 2,620/year

Ninety-nine percent of indigenous cases are caused by P. falcifarum. The areas of major endemicity are in the western parts of the DR where importation of malaria cases from Haiti is a major problem. Control measures being taken by SNEM include:

1. Surveillance (by both Active (80%) and Passive Case Detection);

2. Treatment of presumptive cases (fevers) and diagnosed cases with chloroquine and primaquine: (the latter treatment is also used for laborers legally entering DR from Haiti);

3. Prevention by household spraying with DDT, organized in areas of malaria outbreaks and implemented when DDT and other resources are available. In 1983-84 a large-scale household spraying program was funded by PL-480 funds; more recently (1988), PAHO has provided supplies of DDT.

If the epidemiological figures on the numbers of malaria cases in DR are accepted as accurate (or thereabouts), the annual case load is low but several malaria deaths were reported in 1988. Therefore, the threat of outbreaks remains high, especially because SNEM is underfunded and understaffed and its equipment (e.g. vehicles and pumps) is old. The P.P. identified that training of SNEM staff was required and that the testing of new or improved methods of vector control would help in reduce operational costs, thereby assisting the operational efficiency of SNEM.

b. Dengue - Due to poor diagnosis and reporting, it is not possible to have a clear picture of the endemicity of dengue fever in the Dominican Republic. The same can be said of most

Caribbean countries. Ever since the severe dengue hemorrhagic fever (DHF) epidemic in Cuba (1981), all countries in the region have been advised to control the Aedes vectors in their urban areas and to develop plans for emergency control. A.I.D., in conjunction with PAHO, held a regional workshop in Barbados (1987) for this purpose. Dr. F. Paulino represented SNEM at this meeting. Subsequently a VBC Project team (Drs. Tonn and Waterman) developed a contingency plan for the D.R. at the request of USAID/Santo Domingo. The Mission also supports the serodiagnosis of dengue infections at the National Laboratories (Dra. Ellen Koenig) through the Health Systems Management Project.

SNEM, the responsible GODR agency, does not have at present the skills, manpower or financial resources to conduct urban Aedes control programs. The Project was designed to test the most efficient low-cost methodologies and develop means to implement such methods, which implies the development of health education and community participation through UCMM and SNEM.

2. Malaria Control Activities

The lack of trained personnel and the changes in administration at SNEM have hindered the development of field trials of alternative methods of malaria vector control. To date none have been sufficiently tested under operational conditions that would permit evaluation using the criteria set in the P.P. (p. 15 - effectiveness, cost, duration of effect, ease of application, etc.).

The baseline data that have been collected on anopheline distributions, bionomics, vector capacity, etc. are impressive, however, and essential for developing protocols required for testing the alternate methods of control.

In view of the short period of time available until the PACD (with or without extension), emphasis should be placed on those methods most likely to reduce costs in the control efforts, especially in the amount of insecticide employed. Therefore, selected sites for source reduction and focal spraying (using malathion and/or pyrethroids) in areas where cases of malaria have occurred should be emphasized. In view of the short period of time available, trials with Bti and other biological agents should be postponed until late in the extension period (if granted) or be carried out by UCMM/SNEM staff at a later date. At least two sites should be selected for initiation of source reduction efforts in order to demonstrate the techniques (drainage, filling, canalizing, etc.) and test efficacy.

In addition to the specific control techniques to be tested, the P.P. (p. 22) identified the need to strengthen SNEM's

stratification and surveillance system to allow more efficient control through the combination of epidemiological, entomological and social data. This was to be done by developing a computer facility at SNEM (p. 26) comparable to that developed at UCMM for handling the research data. Such a capacity would also foster the sharing of data between the two institutions for future collaborative efforts.

3. Dengue Control Activities

The Project has concentrated the majority of its field research efforts on Aedes control in Santo Domingo and Santiago. A number of control measures have been tested, as planned. This emphasis on Aedes/dengue control is appropriate in view of the confirmed presence of dengue fever and DHS/DSS in the Caribbean and the real threat they pose to the people of the DR and the economically important tourist industry in the country.

Continuing efforts to collect baseline data on the bionomics of Aedes have provided good biological information and techniques have been developed and/or tested to measure rates of infestation for pre-and post-evaluation of control measures. The measures generally employed in Aedes control (source reduction, larviciding, ground and aerial ULV treatment, use of larvivorous fish, etc.) have been used in many parts of the world for many years with varying degrees of success. Therefore, the essence of an operational research program in a given area is to determine which combination of control measures is most suited to the physical, biological and social environments of the specific urban areas to be controlled, and how that combination can be delivered at an affordable price.

To accomplish this, vector control specialists need the full collaboration of social scientists and education specialists skilled in achieving community participation to employ the methods of vector control that have been selected for implementation. In the case of the DR, there are people with such skills at both SNEM and UCMM who should be brought into service in the Aedes control program. Clearly a broad strategy must be developed and the most appropriate means of communication and public education selected. This will probably require experimental and evaluation stages. The strategy should be written in detail with input from all the specialists to be involved in implementation.

Because the communities are large and diverse, various methods (or levels of intensity) of mosquito control may be required. The baseline data already collected and the entomological surveillance techniques previously developed can be used to stratify the communities into zones to be treated by the various methods developed. Such stratification is fundamental to developing a cost-effective strategy.

The only alternative to a community-based control plan is to design an insecticide-based emergency control program (see program designed by Dra. Medina, et al, January 1989, the cost of which was estimated at over US$500,000, and the guidelines provided in the 1988 TA report of Drs. Tonn and Waterman).

Either approach (control/prevention or emergency control) is going to be costly and will require trained manpower. However, these costs -- estimated for Santo Domingo and Santiago -- must be calculated. If the GODR is not willing or able to provide funds for either approach, there is nothing more that the Project can do. However, the government cannot make a decision about how to proceed if the alternative plans are not presented.

The Project has enough data and experience to outline such programs and estimate their costs. PAHO also has had considerable experience in developing such plans (Guayaquil, Ecuador; Santa Cruz, Bolivia; Asuncion, Paraguay, etc.) and could be asked to provide a consultant to assist. Dr. Michael Nelson (U.S. national, PAHO entomologist based in Panama) is especially good in this field.

4. Progress in Operational Research

The project was to test six methods of vector control during the LOP: three against the anopheline vectors of malaria, and three against the Aedes vectors of dengue. Several methods to be tested were detailed in the P.P., others were to be developed at the discretion of project staff.

The project was to be implemented in the following phases (P.P., p. 11):

Phase One	-	Start-up (months 0-3)
Phase Two	-	Baseline Data Collection (Months 4-9)
Phase Three	-	Operational Research (Months 10-30)
Phase Four	-	Field Test Applications and Final Evaluations (Months 16-36)

The 1988 Evaluation Report pointed out that such a enumeration of six "alternative" methods was not realistic, and that most effective control programs require integration of various methods. Therefore, the definition of specific alternative methods is somewhat arbitrary.

Similarly, the timing of the four phases listed above is not strictly feasible because disease transmission and vector populations tend to follow climatic cycles rather than calendar months, limiting periods of data collection and testing of control methods.

Table 4 lists all research activities conducted to date. By a conservative estimate, two alternate control measures have been conducted against malaria vectors and four against dengue vectors. Several of these have had numerous replicates, as is required.

Table 4: USAID Vector Control Project Research Activities

Research Activities	Status (May 1989)	Comments
1. Malaria		
Baseline Data Collection	A. Indoor/outdoor biting habits established. b. Density data on anophelines available. c. ELISA being used for sporozoite and blood-meal determinations. d. Resistance to DDT noted by WHO method: biochemical analysis not available.	1. Data not completely analyzed. 2. Data need to be correlated with SNEM's epidemiological data to develop stratification system. 3. Resistance testing should be expanded in close association with operational control and trials of new techniques.
Research in Control Techniques		
a. Source reduction b. Biological control (Bti) c. Truck-mounted: fog and ULV spraying. d. Malaria barrier aerial spraying	a. None planned. b. Preliminary tests completed. c. Field trails started in March 89; results not analyzed. d. To begin in June 1989	1. Operational trials for malaria control have been unsuccessful due to mechanical failures. 2. No data on cost-effectiveness of various methods or comparison to house spraying. 3. Focal spraying trials should be repeated.
2. Dengue		
Baseline Data Collection	a. Good data exist on *Aedes* infestation rates in Sto. Domingo and Santiago. b. Methods for evaluating *Aedes* populations (pre-and post treatment) have been developed in conjunction with SNEM.	1. These data are excellent. 2. Further analysis combined with results of serological studies would be useful (Hlth. Mgmt. System project - Dra. Ellen Koenig/ Virology) 3. Infestation rates should be used to stratify districts in cities.

Research Activities (Continued)

Research in Control Techniques		
Insecticides		
a. Aerial spraying	One trial applications concluded (4 applications ULV malathion)	Results were not effective: should be repeated before rejecting method.
b. Truck-mounted	Twelve trial applications concluded (ULV Malathion).	Better results than aerial applications: no long lasting result & costly: costs of both methods should be calculated.
c. Impregnated curtains in houses	One trial concluded (Permethrin)	Result were not effective: costs should be calculated
Biological Control		
Fish	Ongoing (two species)	Effective in individual tanks: effect on overall Aedes populations based on coverage and community participation: needs assessment.
Source Reduction/Covers		
a. Tops on tanks	Ongoing	As above -- needs to be evaluated as part of community participation.
b. Elimination of breeding containers	87% on Aedes breed in household storage for water - ongoing	Elimination impossible if public water service not available - fish & tank covers serve as alternative to tank disposal
Community participation	Ongoing -- combination of methods utilizing SNEM & UCMM staff: one short-term study using media & general education completed.	This is crux of Aedes control: more emphasis should be placed on this using broadest possible combination of SNEM & UCMM capabilities, media, etc. Continued evaluation and reorientation needed: all approaches should be costed.

D. SUMMARY AND RECOMMENDATION

1. Advantages and Disadvantages Associated with Termination of Project at PACD (September 11, 1989)

A. Advantages to refusing extension:

1. reduce project load in HPN and Mission
2. savings (re-obligation) of approximately 0.5 million

B. Disadvantages:

1. additional time to stabilize and institutionalize current project could produce success and achieve original project goals;

2. closing would indicate that operational research cannot be done in D.R.: not a message to be sent SESPAS;

3. termination could be damaging to development of public/private collaboration in the public health field; and

4. would not leave the D.R. with plans to: a) control possible dengue epidemic; and, b) a cost estimate of a control program to prevent such an epidemic.

2. Recommendation

Having reviewed all pertinent documentation and the status of the project at this time, the evaluation team recommend that the mission grant a six-month extention to the PACD until March 11, 1990. This is subject to the development of an acceptable institutionalization plan to solidify the capability of the UCMM and SNEM to carry on operational research in the area of vector control in the future. The grantee has agreed to submit this plan to USAID by June 16, 1989.

3. Activities That Can Be Completed by PACD (September 1989)

a. Institutionalization plan (TA from USC is needed) and additional training to be identified.

b. Detail all activities completed, as follows:

1. Protocols and results filed for all research activities;

2. Training plans and lists of participants filed for all training activities; and

3. SOWs and consultancy reports filed for all TAs.

c. Preparation of:

1. Urban Aedes control plan; and

2. preparation of emergency dengue control plan.

3. Estimated costs to be made for each plan.

d. Stratify one city as an exercise: initiate plans for community participation in dengue control.

e. Prepare detailed SOW for six-month extension including SOW for TAs (until March, 1990).

4. EOPS Projected for 2nd PACD (March 1990)

a. Dengue

1. Repeat truck-mounted ULV spraying.

2. Repeat aerial spraying (if local aircraft available).

3. Initiate larviciding (Abate) operations in selected areas.

4. Revise control and emergency dengue plans; correct cost estimates, as needed.

b. Malaria

1. Compare focal fogging to intradomiciliary spraying to contain malaria outbreaks.

2. Demonstrate source reduction for malaria control (small scale) in at least two areas.

c. SNEM

1. Develop computer-based malaria surveillance and data management system.

d. Institutionalization

1. Develop written agreements between UCMM and SNEM regarding past PACD collaboration.

2. Develop a plan for continued operational research activities at UCMM and at SNEM and identify human and financial resources required.

3. Provide additional T.A. and training as identified in institutionalization plan.

Annex I. SOW (telex) Vector Control Assessment

UNCLASSIFIED
AID 05/08/89
DIR:TSTUKEL
HPD:LEARLY
1.HPD:LHOUGEN; 2.PDS:MBALLEN; 3.PRG:TCORNELL;
AID-2 AMB DCM, AC CHRON

AMEMBASSY SANTO DOMINGO
SECSTATE WASHDC, PRIORITY

AIDAC

FOR: LAC/DR/HN, PAULA FEENEY

E.O. 12356: N/A

SUBJECT: ASSESSMENT OF VECTOR CONTROL PROJECT
- (517-0235).

REF: MOSER/HOUGEN TELCON DATED 4/19/89.

1. USAID/DR'S VECTOR CONTROL PROJECT IS SCHEDULED TO TERMINATE ON SEPTEMBER 11, 1989. THE MISSION HAS RECEIVED A REQUEST FROM THE PROJECT'S GRANTEE, THE UNIVERSITY OF SOUTH CAROLINA (USC), TO APPROVE A NO-COST, ONE YEAR PACD EXTENSION. USAID/DR REQUESTS CENTRALLY-FUNDED ASSISTANCE FROM THE VECTOR BIOLOGY AND CONTROL PROJECT (VBC) AND LAC/DR/HN STAFF TO CONDUCT AN ASSESSMENT OF THE PROJECT AND ADVISE THE MISSION REGARDING WHETHER IT SHOULD BE EXTENDED, IF SO FOR HOW LONG AND IF NOT, HOW EFFORTS SHOULD BE FOCUSED TO OBTAIN MAXIMUM OUTPUTS BEFORE THE PACD.

2. LEVEL OF EFFORT AND SCOPE OF WORK. THE MISSION REQUESTS ASSISTANCE FROM TWO TO THREE PERSONS, ONE OR TWO FROM THE VBC PROJECT (AT LEAST ONE VECTOR CONTROL EXPERT) AND ONE LAC/DR/HN STAFF MEMBER, FOR A PERIOD OF APPROXIMATELY ONE WEEK EACH, TO CARRY OUT THE FOLLOWING TASKS:

- (A) REVIEW RELEVANT PROJECT DOCUMENTATION, INCLUDING THE MID-TERM EVALUATION CONDUCTED IN AUGUST 1988 AND JUSTIFICATIONS FOR EXTENDING THE PROJECT PREPARED BY USC AND MISSION STAFF.

- (B) ASCERTAIN THE CONTRIBUTIONS MADE TO THE PROJECT BY COUNTERPART INSTITUTIONS AND THE CONTRIBUTIONS MADE TO THE COUNTERPART INSTITUTIONS BY THE PROJECT. DETERMINE WHAT PLANS THE COUNTERPART INSTITUTIONS HAVE TO CONTINUE PROJECT ACTIVITIES AND UTILIZE PROJECT-GENERATED SKILLS AND KNOWLEDGE AFTER THE PROJECT ENDS.

- (C) REVIEW PROJECT ACTIVITIES, INCLUDING ALTERNATIVE VECTOR CONTROL METHODS BEING TESTED, TO DETERMINE WHAT EFFECT TERMINATION OF THE PROJECT WILL HAVE ON THE OBTENTION OF USEFUL RESEARCH RESULTS AND USABLE OUTPUTS. PREPARE A LIST OF THE VECTOR CONTROL METHODS THAT MERIT CONTINUATION BEYOND THE PACD, THE REASONS WHY AND AN INDICATION OF THE AMOUNT OF TIME NEEDED TO TEST THE METHODS AND HAVE THEM ADOPTED BY SNEM.

- (D) MEET WITH THE MISSION PROJECT COMMITTEE AND ADVISE IT REGARDING WHETHER THE PROJECT SHOULD BE EXTENDED, IF SO FOR HOW LONG AND IF NOT, HOW EFFORTS SHOULD BE FOCUSED TO OBTAIN MAXIMUM OUTPUTS BEFORE THE PACD.

3. TIMING. USAID/DR REQUESTS THE ABOVE TECHNICAL ASSISTANCE ASAP SO THAT PROJECT STAFF CAN PLAN ACTIVITIES ACCORDING TO A REALISTIC ASSESSMENT OF HOW MUCH TIME IS LEFT IN THE PROJECT.

4. FUNDING. THE MISSION WILL RESERVE OE FUNDS NTE DOLS. 1,450 FOR THE LAC/DR/HN STAFF MEMBER, UNDER THE FOLLOWING FUNDING CITATION: APPN. 72-1191000; BPC COEA-89-25517-UDDD; RES. CTL. NO. A900448. ADVISE ATTN. USAID/DR CONTROLLER TA NUMBER AND DATE ISSUED AND FORWARD COPIES FOR USAID/DR CONTROLLER. MISSION REQUESTS THAT VBC EXPERTS BE CENTRALLY-FUNDED. TAYLOR##

memorandum

DATE: May 15, 1989

REPLY TO ATTN OF: Mary Beth Allen, PDS

SUBJECT: Vector Control Assessment - Project 517-0235

TO: Lee Hougen and Lisa Early, HPD

THROUGH: Robert Mathia

Thank you for your recent memo giving us the schedule of the Vector Control Assessment Team. We look forward to working with you and the team over the next weeks. We also appreciated meeting with Andy Arata (of AID/S&T's Vector Biology and Control Project), and look forward to meeting the other team member, Patricia Moser of LAC/DR/HN. We are sure that both individuals will provide a good technical view of the merits, accomplishments and shortcomings of this project, which will shape their recommendations vis a vis its continuation.

We suggest that the following points also be considered by the Assessment team. These will assist the Mission in its determination for extension of the subject project's PACD from a technical, managerial, and "cost-benefit" point of view:

1) what planned outputs will not be completed by the current PACD;

2) what are the reasons why these outputs can not be completed;

3) what will be the impact of the project's outputs on purpose and goal as of the September PACD, and how does this differ from the original, planned outputs/EOPS?

4) to what extent (and why) has the actual project deviated from the intended level and types of inputs in the original PP, and what has been the impact of this on meeting the project targets identified in the PP? (this includes "important assumptions" made during the design of the project that did not occur as assumed.) What are the "lessons-learned" regarding the adequacy of the project design, and implementation problems in vector research projects?

5) were the research techniques and research methodology utilized by the implementing institution (USC) appropriate? What is the team's assessment of USC's performance in general in implementing the project?

OPTIONAL FORM NO. 10
(REV. 1-80)
GSA FPMR (41 CFR) 101-11.6
5010-114

GPO:1987 O-170-780

6) Mission workload—what does this project (now, and for any extension period) imply for the HPD and Mission workload? HPD has stated that this project has the lowest priority of all of the Health projects that are currently active. Does the "cost" of our time to Vector Control Project (including the time this subtracts from other, higher priorities) bear out the real "benefits" to the Dominican Republic?

[i.e., HPD currently has 7 project management units, plus PL 480 Title II. Four of these are/will be undergoing "amendments" of one sort or another—Fam.Planning, AIDS, Child Survival, HSM. Add on other events (conferences, meetings, symposium, studies, evaluations, TDYers, etc...) to reach a sum of level of effort (person days/hours) and "divide" by 5 people. The Mission then needs to consider that the Mission currently has 25 active projects, 8 due to expire by September 1989, 3 new projects to be obligated in FY 89, giving us a sum of 20 projects by September of 1989. Two 1990 projects will bring our level to 22 by o/a January 1990. What will be the net affect of one more management unit to the Mission's workload over the next year?]

We look forward to discussing any of these points with you and the team to further clarify them if necessary.

cc - PRG, T. Cornell
CONT, R. Lawrence

Annex II. SOW (Memorandum from M. B. Allen to L. Hougen and L. Early)

Annex III. Response of Vector Control Project Recommendations of August 1988 Evaluation

Recommendation

Focus on LOP: tendency by participants to address issues beyond SOW.

Response

Partial response: some activities lack priority for LOP objectives. In part this is due to research vs. control approach of P.P.

Recommendation

Communication problem - SNEM/UCMM/Project Staff.

Response

Partially solved by change in administration of SNEM.

Recommendation

Concentrate on An. albimanus, not other 3 species.

Response

Baseline data can cover all 4 species, but detailed studies of other species should be deferred. However, concentration should be on how to study bionomics and vector capacity, not individual secondary vectors.

Recommendation

A. SNEM to designate one person to work with Program coordinator.

B. A.I.D. advisor to SNEM desired.

Response

A has been done.
B is impractical.

Recommendation

Program coordinator to establish a "research matrix."

Response

This has not been done and should be a priority before September 1989 PACD.

Annex IV. AGENDA

Patricia Moser and Andy Arata Visit to the D.R.
Vector Control and Project Assessment

Sunday, May 14

p.m. Arrival of Andy Arata, VBC Project. Hotel Lina

Monday, May 15

a.m.

9:00 Meeting, A. Arata/L. Hougen/L. Early
10:00 Meeting, A. Arata/L. Hougen,L.Early/B. Mathia/M.B. Allen.

p.m.

2.00 Meeting, A. Arata/M. Tidwell/Yilma Mekuria

Tuesday, May 16

a.m.

Meeting at SNEM, A. Arata/M. Tidwell/Dra. Rosa Cespedes/Dr. M. Mercedes.

p.m.

Visit of A. Arata/M. Tidwell to dengue and malaria field sites in or near Santo Domingo.

Travel to Santiago, A. Arata/M. Tidwell.

Wednesday, May 17

a.m.

Visit to Vector Control Laboratory, A. Arata/M. Tidwell.

10:00 Meeting at UCMM, A. Arata/M. Tidwell/A. Peralta/A. Zaglul/F. Russell/R. Fernandez.

p.m.

Travel to Santo Domingo, A. Arata/M. Tidwell
Arrival, Patricia Moser, LAC/DR.

Thursday, May 18

a.m.

10:30 Meeting P. Moser/A. Arata/T. Stukel (Dir)/R. Rifenburg/L. Hougen/L. Early/B. Mathia/M.B. Allen.

p.m.

2:00 PAHO Rep. Dra. Mirta Roses.
Visit of P. Moser/L. Hougen/M. Tidwell to dengue field sites in Santo Domingo.

Friday, May 19

a.m.

8:30 Visit SNEM.
Meeting P. Moser/A. Arata/M. Campillo (Dir. Nacional de Salud)R. Céspedes/L. Hougen/L. Early/M. Tidwell/Ing. Gagñan/M. Mercedes.

p.m.

National Labs Dra. Ellen Koenig, Head, Virology.

Sunday, May 21

p.m.

Arrival, Winonan Vernberg, USC. Santiago.

Monday, May 22

a.m.

8:30 Breakfast, W. Vernberg/L. Early/M. Tidwell/L. Hougen/A. Peralta.

10:00 Meeting P. Moser/A. Arata/W. Vernberg/M. Tidwell/L. Peralta.

p.m.

2:00 Meeting R. Rifenburg/W. Vernberg/M. Tidwell/L. Hougen/L. Early/M.B. Allen/A. Peralta/M. Campillo/R. Céspedes/A. Arata/P. Moser.

Travel to Santiago, W. Vernberg/M. Tidwell.

Tuesday, May 23

a.m.

Travel to Santiago, L. Early/L. Hougen/P. Moser/A. Arata/R. Rifenburg (unable to attend).

11:00 Inauguration of Vector Control Laboratory. Luncheon at UCMM.

p.m.

Return to Santo Domingo.

Wednesday, May 24

a.m.

Departure, W. Verberg

9:00 Mission debriefing, P. Moser/A. Arata/ R. Rifenburg/M.B. Allen/T. Cornell/L. Hougen/ L. Early.

p.m.

Depature, P. Moser/A. Arata.
Written report will be provided to USAID/DR in one week.

Suggested Agenda
(USAID, Santo Domingo, Debriefing May 24)

1. Opening - Background of Evaluation

2. Review of P.P. and SOW of Evaluation Team

   a. Goals and Objectives of Project

      (problems associated with P.P. time and schedule and research project format)

   b. Logical Framework
      EOPS
      Assumptions

3. Review of Project Status: May 1989

4. Expected Status by PACD September 1989
   and actions (CPs??) to be taken

5. Expected Status by Extended PACD March 1990
   and actions (CPs??) to be taken

6. Discussion